

Enhanced Mystery Crystal Set Also Pulls in FM

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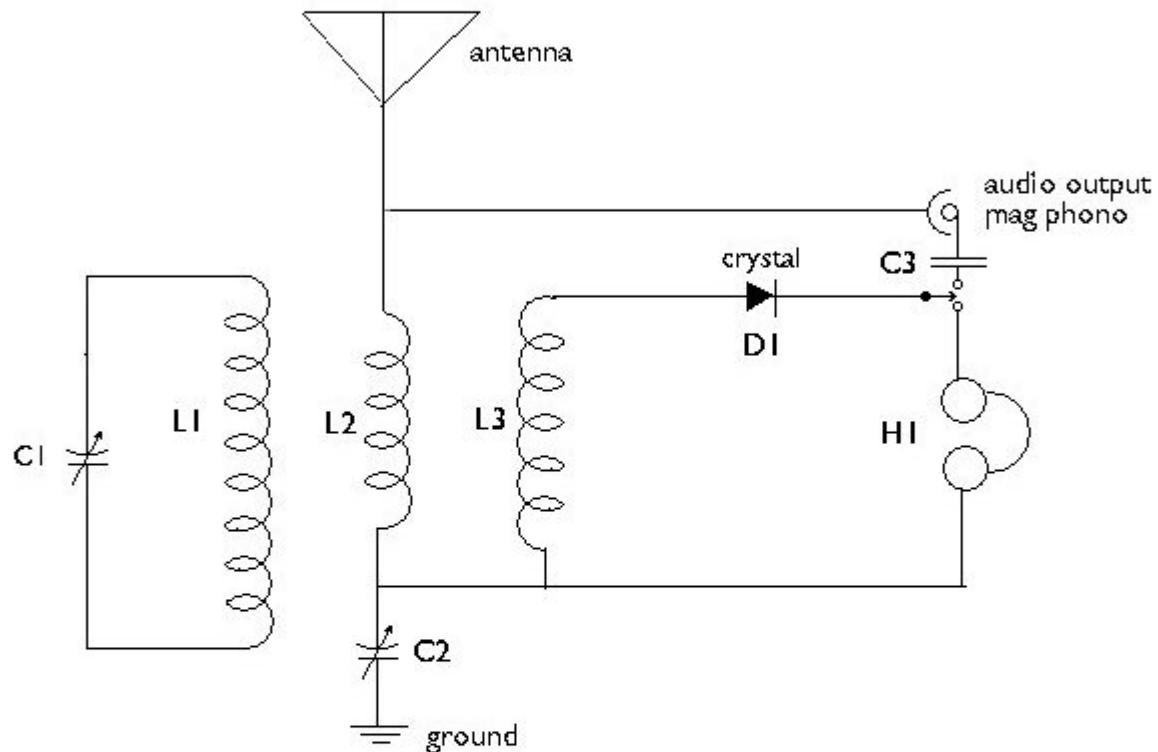


The Australian "Mystery Crystal Radio" has been praised since its original publication in 1932, but I don't think anyone has ever mentioned its capability for FM reception. To clarify somewhat, it is the Mystery Plus set, rather than the original circuit to which I am here referring. The original Mystery set had two coils wound in tandem, whereas the Plus set has three coils -- an extra one for antenna tuning. The only other substantive change I have made is an additional variable capacitor on the ground circuit, an outboard rock detector jack, and an audio output jack for playing through a sound system (optional). The capacitors cannot be ganged. Here is the circuit.

Enhanced Mystery Crystal Radio

with Optional Audio Output and FM Detection

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Parts List

C1 350 pf air variable capacitor

C2 350 pf air variable capacitor

C3 2750 pf capacitor

L1 45 turns 22 gauge magnet wire

L2 15 turns 22 gauge magnet wire wound on top of L1+L3 and separated from them by a layer of duct tape

L3 25 turns 30 gauge magnet wire wound parallel to L1 after the twelfth turn of L1

HI high-impedance headphones

D1 Detector: IN34 germanium diode or crystal rock detector

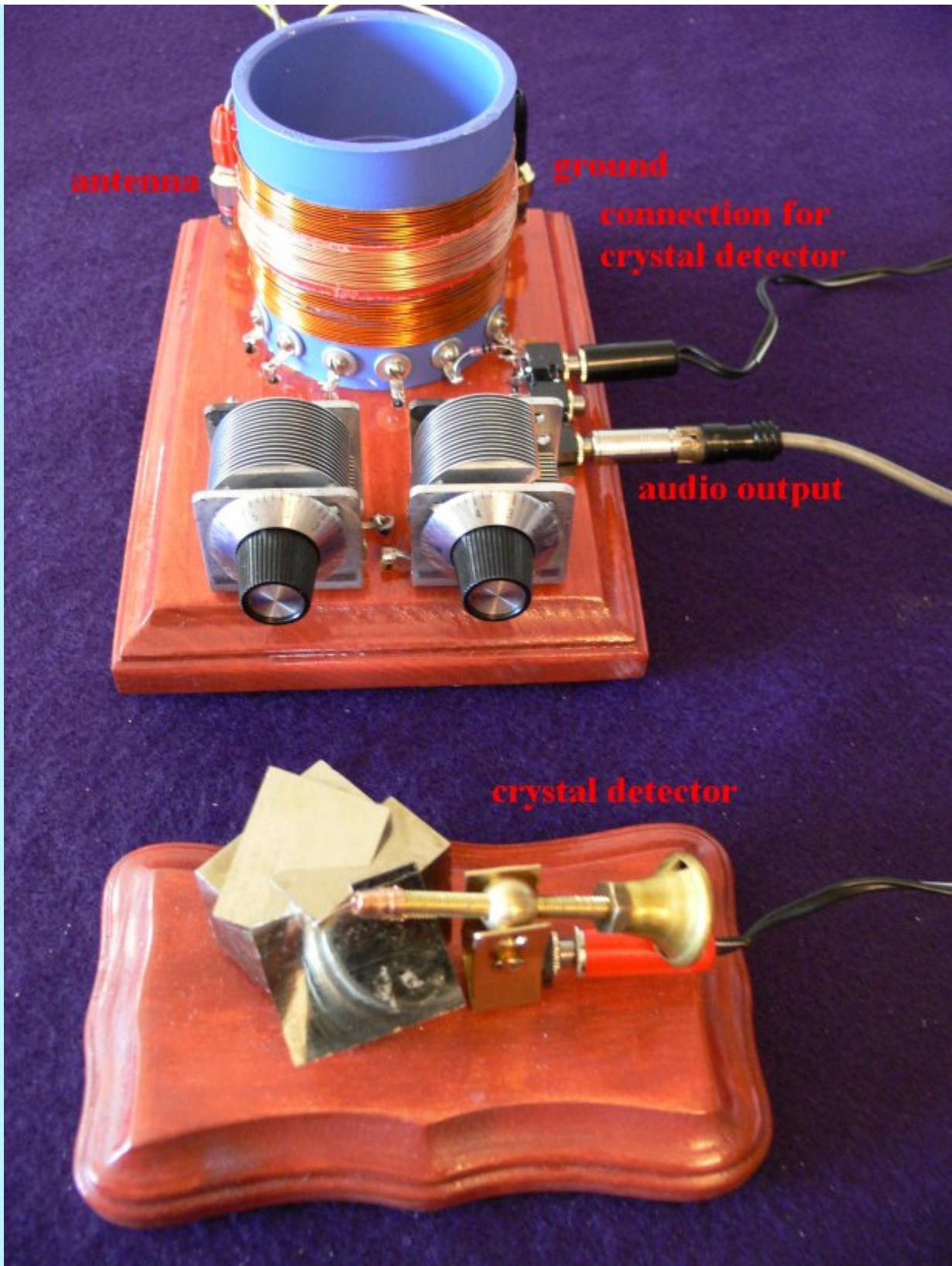
Coil form 2.75" diameter and 3" long (PVC pipe)

*original Mystery circuit: The Sunday Mail - Brisbane, Australia, April 16, 1933

This set is an amazing performer. It has crystal clear reception, good sensitivity, and excellent selectivity. To my surprise, in addition to the expected panoply of AM stations, I heard a faint signal that I could not

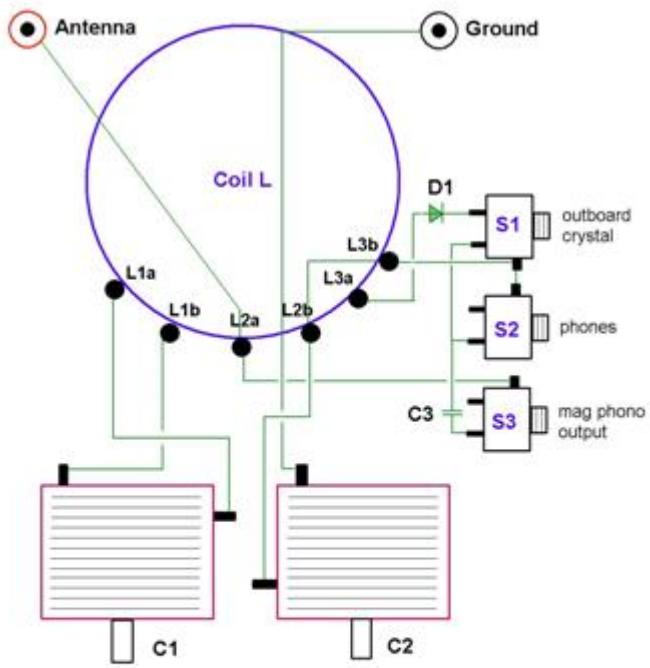
tune out. At first I could not identify it. To my surprise I heard the announcement "KiiM FM, 99.5"! This is a country music station here in Tucson. It was all over the dial, untunable, but the much louder AM signals masked it when they were tuned in.

I set myself the task of trying to improve the FM signal. I tried some simple circuit modifications, which did not improve anything. Then I connected a dipole antenna instead of the AM antenna I normally use. Suddenly, the FM signal was much clearer, although still weak. By using the audio output and sound system amplifier, I was even more amazed that four different FM stations came in loud and clear. I found that changing the telescoping antenna length and position I could tune the stations in and out. They were KRQ, KLPX, KiiM, and KHYT all local FM stations with transmitters nearby. Their reception was also affected by the length and position of the audio output cable.



The "rock" is a beautiful "tinned" pyrite from Spain. I have found that many metallic rock crystals will work as detectors, including galena, molybdenite, various copper ores such as "Peacock" copper, hematite, and zincite. Watch for a future webpage on crystal detectors.

layout



Parts List

C1 350 pF air variable capacitor
 C2 350 pF air variable capacitor
 C3 2750 pF capacitor
 L1 45 turns 22 gauge magnet wire
 L2 15 turns 22 gauge magnet wire wound on top of L1+L3 and separated from them by a layer of duct tape
 L3 25 turns 30 gauge magnet wire wound parallel to L1 after the 12th turn of L1
 D1 Detector crystal (1N34 diode)
 Coil L 3" dia x 3" long PVC pipe
 S1, S2, S3 miniature phone jacks (mono)



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